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EDITORIAL

Cancer Therapeutics: Do We Need Alternative Treatment Strategies?

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One of the greatest challenges of modern medicine is the development of effective therapies for the treatment of malignant neoplasms. However, widespread tumor resistance to conventional chemotherapy remains a serious public health concern. Cytotoxic agent overuse does, in fact, result in the accumulation of multi-drug resistance phenotypes in a variety of cancer cell lines. These resistant malignancies can induce disease progression that is difficult to control, prolong the course of cancer-related illness, and even result in patient mortality. Healthcare organizations may incur increased costs as a result of these resistance phenomena.

Over 1,500 oncology drugs have entered clinical trials from Phase I to Phase III since 2015. Although the initial reaction to this news was positive, further analysis revealed a more sobering outlook: only 5–7% of these investigational agents will ultimately receive regulatory approval and become standard of care. Foremost, the majority of these therapeutics are modifications of already existing drug classes cytotoxics, targeted small molecules, or monoclonal antibodies rather than having a brand-new mechanism of action. Furthermore, just 12% of the oncology drugs currently under development are anticipated to demonstrate superior efficacy compared to existing standards.

Chemotherapy remains the preventative and curative method of choice for treating malignancies, nonetheless. Furthermore, the extensive use of cytotoxic agents in contemporary oncology encourages the selection and expansion of tumor populations that are resistant to the drugs, which increases the risk of treatment failure and disease recurrence. In order to stop the progression of the resistance phenomenon, it is critical to develop novel therapeutic strategies that are not conventional cytotoxics. As a result, the National Cancer Institute even suggests that we may be approaching a "post-chemotherapy era" where some malignancies may become increasingly refractory to available interventions.

Since it necessitates longer treatment courses and more costly, comprehensive care, therapeutic resistance has a considerable financial influence on national economies and health systems because it decreases patient survival and quality of life. The number of patients whose treatment is failing or who succumb to disease will rise in the absence of efficient methods for the early detection and sufficient treatment of drug-resistant malignancies, as well as enhanced access to current and novel targeted agents with high levels of quality assurance. Bone marrow transplants, immunotherapy protocols, and surgical interventions, including tumor resections or metastasectomies, will all become less effective treatment options.

The lifestyle factors linked to increasing longevity and environmental exposures in industrialized nations contribute substantially to rising cancer incidence. Due to these circumstances, in-depth study must be done on therapeutic resistance, its molecular mechanisms, and strategies to prevent or overcome them. The number of studies being done on issues relating to cancer biology and treatment resistance has increased exponentially. Even outstanding papers, however, are not always accepted for publication due to space restrictions in established journals, and valuable communications sometimes take too long to be published. Another reason for the delay is the intense competition between studies with a clinical and translational research focus. We founded the *Open Journal of Biomedical Research* as a result of these factors. We plan to publish the findings of original studies on oncology, molecular biology, and all other relevant biomedical disciplines. Therefore, we extend an invitation to all members of the diverse biomedical research community to submit their research findings to this journal and join the team tackling the oncology area in the upcoming decade.

Finally, I hope that this collection of papers will be useful, timely, and fascinating to readers. I sincerely thank all of the reviewers for their insightful criticism and suggestions on the articles that were submitted.

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